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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,450	01/17/2002	Daniel M. Gruen	3330/61	6982

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EXAMINER	
DATSKOVSKIY, SERGEY	

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/051,450	GRUEN ET AL.	
	Examiner	Art Unit	
	Sergey Datskovskiy	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of the claims

Claims 1-18 were originally presented. After the First Non-final Office Action, claim 11 was amended. Claims 1-18 are still pending in the Instant Application.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. The invention as disclosed in claims 1-18 is directed to non-statutory subject matter.

Claims 1-9 are method claims whose steps are not required to be practiced on a computer, electronic devices, electrical machines, mechanical apparatus, or any concrete or tangible instrument or equipment. These steps are considered abstract procedures manipulating abstract concepts. Therefore, it is considered that these claims are not limited to practice in the technological arts. These claims are not considered to be statutory.

Claims 10-18 use a computer to execute method claims 1-9. However, merely claiming nonfunctional descriptive material stored in a computer-readable medium does not make the invention eligible for patenting. The examiner believes that method claims could be executed by using pencil and paper in its simplest case without necessarily using a computer. Further more, a computer readable media does not specify that the media is physical and permanent but could be a carrier wave that is fleeting. Therefore,

these claims are not considered to be tangibly embodied in the useful arts. Applicants should note that the specification is not considered to provide any limit on the scope of the word "media".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Agrawal, U.S. Patent Number 6,094,651 (Agrawal). Specifically:

Claim 1

3. Agrawal discloses a method for recognizing and flagging data item (col.1, lin.29-37, data items are data cells stored in the multiple dimensional database) by one or more application programs (col.1, lin.21-28) as falling within the scope of rule (col.1, lin.37-45; the use of attributes implies rules are used to place the data into groups based on the particular attributes) but anomalous when compared with other data items within the scope of rule (col. 2, lin.38-43) comprising:

- Determining a collection to which the data item belongs as defined by rule (col. 4, lin.47-52., areas of data cube is the collection and the rule is the measure based on Self-Exp value)

- Calculating statistics for the other data items in the collection (col.3, lin.1-6; the expected value, such as Self-Exp value, is the statistics)
- Identifying whether the data item is an anomalous data item based on the statistics calculations (col.2, lin.38-43)
- Flagging anomalous data item as anomalous (col.4, lin.47-52; a cell with a anomalous Self-Exp value is highlighted with a color.)

Claims 2-7

4. The step of calculating statistics further comprising:

- (claim 2) calculating a mean data item size and standard deviation for the other data items in the collection (col.3, lin.16-20).
- (claim 3) calculating a mean interval between data items and standard deviation for the other data items in the collection and (claim 4) calculating a mean data item arrival time and standard deviation for the other data items in the collection (col.9, lin.63-67. Data items have time dimension that contribute to the value of cell data. The meaning of time is open for explanation that would have included interval between data and mean data arrival time. Therefore statistics calculation as indicated above claim 2 also applies with respect to time value of the data)
- (claim 5) calculating a presence or absence of keywords for the other data items in the collection and identifying whether the data item is an anomalous data item based on the presence or absence of keywords. (col. 2, lin.43-53; keywords

would have been a part of a composite value of data subject to statistics calculation as illustrated in claim 1)

- (claim 6) calculating statistics for the other data items in the collection is performed in real time (col.1 , lin.21-35; On-Line in OLAP means seven days a week, 24 hours a day, sixty minutes an hour and sixty seconds a minute and OLAP data cubes are used for interactive exploration of data. Hence real time.)
- (claim 7) calculating statistics is performed periodically (col.1, lin.24-28, the users can use OLAP any time and they would have used it periodically)

Claims 8, 9

5. (claim 8) The step of identifying in claim 1 comprises determining whether the data item falls outside a number of standard deviations from statistical calculations (col.6, lin.38-42).

6. (claim 9) A user can set the number of standard deviations (col.4, lin.11-18; the user interface based on Microsoft Excel as front end for user-interaction allows user to set values of data such as standard deviation)

Claims 10-18

7. Claims 10-18 correspond to claims 1-9 respectively by using a computer to implement the method steps in claims 1-9. Therefore claims 10-18 are rejected under the same rationale as cited in the rejection of rejected claims 1-9 respectively. Agrawal also teaches the implementation of the method for

recognizing and flagging data item using program storage device and a machine that embody a program of instructions executed by the machine for the performing the method. (col.3, lin.21- 30)

Response to Arguments

Applicant's arguments filed July 14, 2005 have been fully considered but they are not persuasive. The unpersuasive arguments made by Applicant are stated below:

In reference to Applicant's argument:

Regarding the rejection of claims 1 through 18 under 35 U.S.C. 101, the Examiner asserts that claims 1 through 9 "are not required to be practiced on a computer, electronic devices, electrical machines, mechanical apparatus or any concrete or tangible instrument or equipment" and are therefore "considered abstract procedures manipulating abstract concepts." Office Action dated February 10, 2005 at 2. The Examiner considers these claims not statutory because they "are not limited to practice in the technological arts." Id. The Examiner also argues "claims 10 through 18 use a computer to execute method claims 1-9." The Examiner believes that because the claims "could be executed by using pencil and paper" and the computer readable media "could be a carrier wave that is fleeting", the claims are not "tangibly embodied in the useful arts." Id. at 2-3.

Any process, whether electronic, chemical or mechanical in nature, necessarily involves an algorithm in the broad sense of the term. AT&T v. Excel Communications Inc., 50 U.S.P.Q. 2d, 1447, 1450 (Fed. Cir. 1999), citing, State Street Bank & Trust Co. v. Signature Financial Group, 47 U.S.P.Q. 2d 1596, 1602 (Fed. Cir. 1998). The proscription against patenting a "mathematical algorithm", to the extent that this doctrine still exists, is narrowly limited to claims directed towards mathematical algorithms in the abstract. Id. A process that applies an equation to a new and useful end is not barred by 35 U.S.C.101. Id. at 1451, citing, Diamond v. Diehr 450 U.S. 175, 188 (1981). An unpatentable mathematical algorithm can be identified in that it is merely an abstract idea constituting a disembodied concept and is thus not useful. Id., citing, State Street Bank, 47 U.S.P.Q. 2d at 1601. A claimed process therefore satisfies 35 U.S.C. 101 if it produces a useful, concrete and tangible result. Id.

Examiner's response:

Claims 1-18 are directed to a "mathematical algorithm". For example the steps of "determining a collection to which the data belongs as defined by the rule" (there is no indication that such rule is not a mathematical rule), "calculating statistics", identifying

the data based on statistics, "flagging the data item", "calculating a mean interval" can all be viewed as mathematical operations, and therefore, comprise a mathematical algorithm.

In reference to Applicant's argument:

> Process claims need not recite specific structure to satisfy 35 U.S.C. 101 as the Examiner suggests. State Street Bank, 47 U.S.P.Q 2d at 1601. The requirement that the Examiner is applying most likely stems from the now defunct Freeman-Walter-Able test. AT&T Corp., 50 U.S. P.Q 2d at 1452. This test, in light of recent court rulings, has little or no applicability. Id.
>
> Contrary to the Examiner's unsupported conclusion limiting claims to practice in the technological arts or, alternatively, embodied in the useful arts, the applicable test for whether a claim recites statutory subject matter is simply whether the claim produces a useful, concrete and tangible result. Claims 1 through 18 satisfy this test. Specifically, independent claim 1 provides a useful, concrete and tangible result in that it is directed towards a method for recognizing and flagging a data items used by one or more application programs as falling within the scope of a rule but anomalous when compared with other data items falling within the scope of the rule. Independent claim 10 is directed towards computer readable media comprising program code, the program code instructing a programmable computer to execute the method of claim 1. The result produced by independent claims 1 and 10, as well as the claims that depend thereupon -- recognizing and flagging a data item as anomalous -- is a useful, concrete and tangible result, thereby satisfying the test for statutory subject matter.

Examiner's response:

The rejected claims are not useful, concrete and tangible, since the result of the disclosed method is not represented by any concrete and tangible subject matter. There is also no indication of any kind of post processing applied with the method and relating to a concrete and tangible subject matter. The resulting subject matter of the rejected claims is described by an abstract term "data", which cannot be interpreted as a concrete and tangible result. Abstract ideas (see Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759) or mere manipulation of abstract ideas (see Schrader, 22 F.3d at 292-93, 30 USPQ2d at 1457-58) are not patentable.

In reference to Applicant's argument:

Agrawal fails to teach or suggest the claimed elements. The Examiner concludes that Agrawal determines a collection to which a data item belongs as defined by a rule, directing Applicants to col. 4, lns. 47-52. A review of this passage, however, only states that a "highlight exceptions" feature allows that determination of areas of the cube that are worth exploring in terms of exceptions on the basis of a Self-Exp value, which is an expected value, for each cell in the cube. Col. 4, lns. 47-52. Agrawal is silent regarding the element of determining a collection to which the data item belongs as defined by a rule.

Examiner's response:

A collection of data is a multitude of items selected and separated from others by a specific rule. Elements are disclosed as cells of the data cube. The rule is disclosed in the reference by selecting cells with a relatively greater intensity coloring. For example col. 4, lines 66-67, col. 5, lines 1-3 describe identifying a collection of data such as "cells for the months of August, September, and October".

In reference to Applicant's argument:

The Examiner further argues that the use of a Self-Exp value for a cell reads on the elements of calculating statistics for other data items in the collection and identifying whether the data item is an anomalous data item based on the statistics calculation. Agrawal contracts the Examiner's conclusion, as it states that a "surprise value associated with each cell is a composite value that is based on at least one of a Self- Exp value for the cell, an In-Exp value for the cell and a Path-Exp value for the cell." Col. 2, lns. 44-47. Agrawal further discloses that "the Self-Exp value for the cell represents a degree of anomaly of the cell with respect to other cells . . . ", Col. 2, lns. 54-56, as opposed to statistics calculated for other data items in the collection as claimed. Agrawal therefore fails to teach or suggest both the steps of calculating statistics for other data items in a collection and identifying whether the data item is an anomalous data item based on the statistical calculations.

Examiner's response:

Statistics are defined as numerical data (see American Heritage College dictionary). Calculating statistics for the other data items in the collection is disclosed by Agrawal as a step of associating a surprise value with each cell (col. 2, lines 47-53). Such calculation involves "summing, or alternatively, multiplying, coefficients

corresponding to each of 2k-1 levels of aggregation of the data cube" (col. 3, lines 1-6). Furthermore, calculating group coefficients involves calculating an average value or a median value which are recognized as statistical operations. In view of proved correctness of the assumption that Agrawal discloses statistics as surprise values, identifying anomalous data is also disclosed as indicating a data anomaly based on the surprise value (col. 2, lines 38-43).

In reference to Applicant's argument:

> Claim 10 is directed towards computer readable media comprising program code, the program code instructing a programmable computer to execute the method of claim 1. Claim 10 is therefore allowable for at least the reasons provided in connection with claim 1. Applicants assert that independent claims 1 and 10 are allowable over Agrawal and respectfully request withdrawal of the rejection and allowance of claims 1 and 10.

Examiner's response:

Since claim 10 is a computer program that executes the method of claim 1, the rejection of claim 10 stays the same due to the reasons for the rejection of claim 1 pointed above.

The depended claims of the present application stay rejected because the rejection status of the independent claims did not change.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sergey Datskovskiy whose telephone number is (571) 272-8188. The examiner can normally be reached on Monday-Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight, can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.D.

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